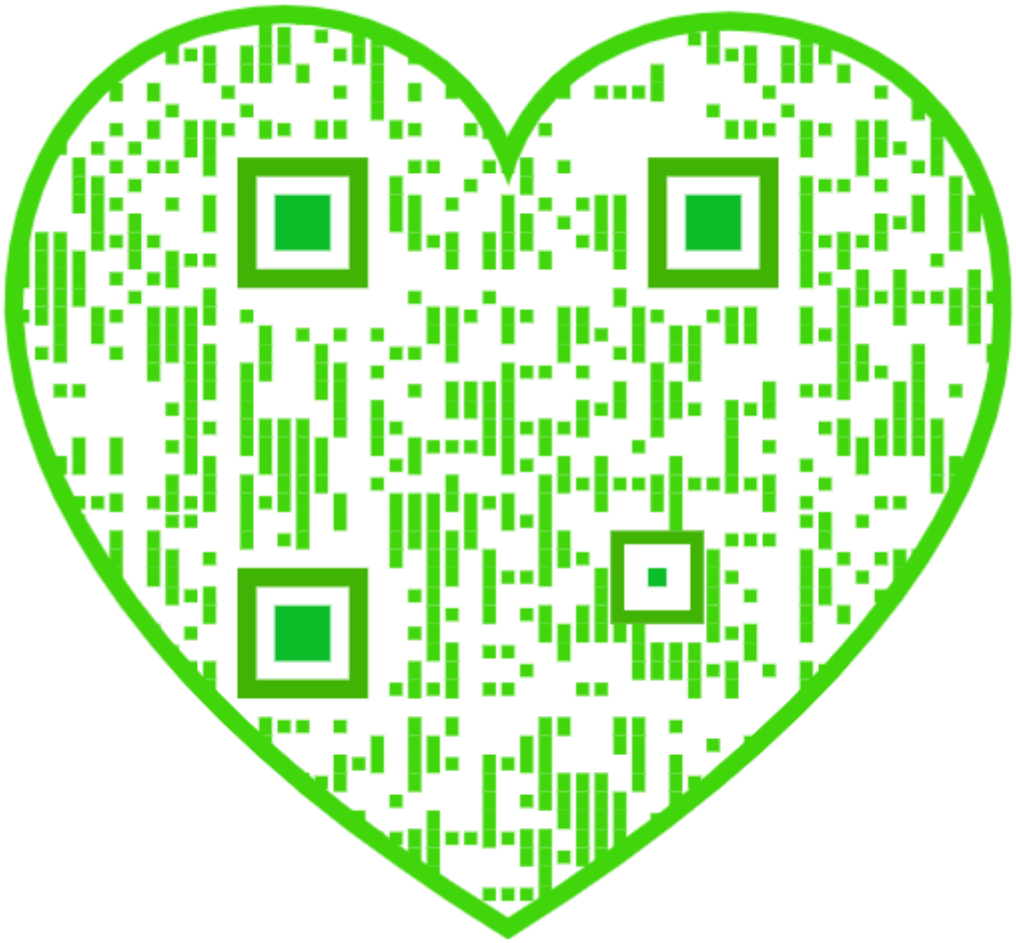
FULL AUTO

Semi-Auto UZI Modification Manual



Full Auto - Volume Two
Uzi Modification Manual

Notice

The modification of any firearm to fire fully automatic is illegal without prior approval of the BATF. Also, the manufacture of a part or group of parts that, when installed in a firearm makes it fire fully automatic, is illegal without prior approval of the BATF.

Please be advised that the publishing of this book is for academic purposes only. The publisher assumes no responsibility or liability for the improper or illegal modification of a firearm.

Table Of Contents

CONTENTS PAGE

Introduction 7

Chapter 1
Difference Between The Full And Semi-Auto Uzi 9

Chapter 2
Modification Of Bolt 15

Chapter 3
Select Fire Modification 23

Chapter 4
Full Auto Select Lever 27

Introduction

The Uzi, often referred to as the world's finest submachine gun, was designed by Uziel Gal. The first production of this weapon was in 1951, following the Arab-Israeli War of 1948. Since then it has been proven in action many times in the seemingly never ending Israeli wars.

The Uzi probably reached its height of acceptance in the now famous photo of a Secret Service agent brandishing one just seconds after the attempted assassination of President Reagan.

Secret Service agent armed with full auto Uzi ready for action following the attempted assassination of President Reagan.

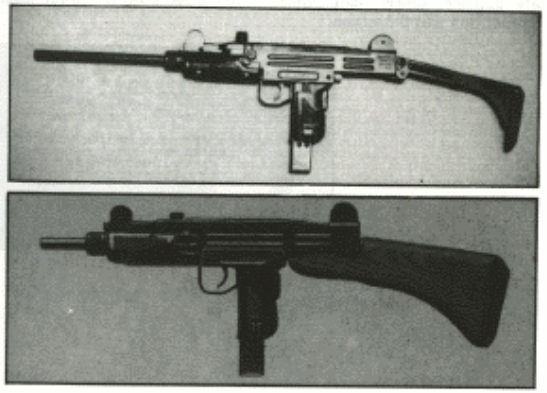
The semi-auto Uzi was introduced in 1980 because of the ever growing interest in its full auto brother. To meet BATF approval, several changes were made in the weapon. These are spelled out and shown in the first chapter.

1

Difference Between The Full And Semi-Auto Uzi

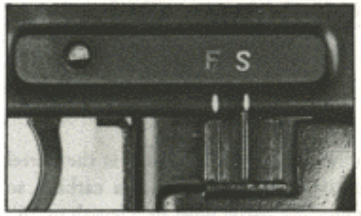
External Differences

1. The most readily noticeable difference is the barrel length. The semi-auto Uzi is manufactured as a carbine, so to meet BATF acceptance the barrel must be a length of 16" or more, instead of the 10.2" of the original.



The upper photograph is that of a semi-auto Uzi carbine with 16 inch barrel. Lower photograph is a full-auto Uzi with 10.2 inch barrel and wooden stock.

2. The second external difference is to be found in the select lever. The semi-auto Uzi has a two position lever ("S" for Safe and "F" for Fire) instead of the 3 position lever ("S" for Safe, "R" for repetition or semi-auto and "A" for automatic) of the full auto version.



Upper left: semi-auto Uzi select lever, note only two position, in safe position. Lower right: full-auto Uzi three position select lever in repetition (semi) position.

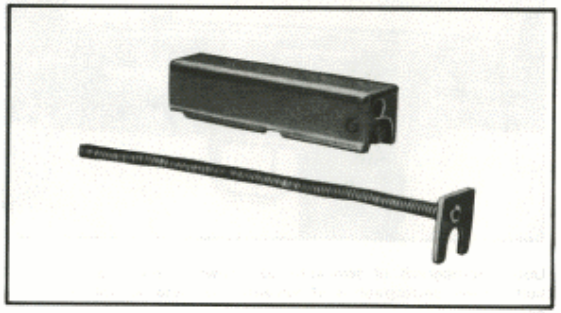
3. The third, but not as noticeable, external difference is a machined slot in the side of the semi-auto bolt which is not on the original, full auto version. This slot corresponds with a narrow block of steel welded to the inside of the upper receiver. The apparent reason for this is so the full auto bolt cannot be interchanged with the semi-auto version.

Upper photograph of semi-auto Uzi shows exposed slot in side of bolt. Lower photograph is of full-auto Uzi, note no slot in exposed bolt.

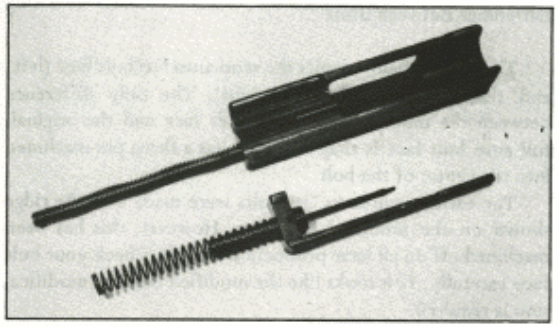
Internal Differences

The full auto Uzi fires from an open bolt. This means that to ready the weapon to fire, the bolt is pulled back into an open or cocked position. The bolt and firing pin are machined as one integral unit. When the trigger is pulled the bolt slams forward, chambering and firing a round in one motion. The bolt is then blown back and resumes its open position.

The semi-auto Uzi was modified to fire from a closed bolt position, with a separate firing pin and striker assembly. This was again apparently done to meet BATF approval. However, the closed bolt firing position does aid accuracy in the semi-auto, since the open bolt slamming forward has a tendency to drop the barrel slightly. "Closed bolt" means that when the bolt is brought back, it merely cocks the firing pin striker assembly. When released, the bolt slams forward, chambering a round. A separate pull on the trigger is necessary to release the firing pin striker assembly and fire the weapon.



Full-auto Uzi bolt with spring assembly. The firing pin is machined on bolt face and is part of the bolt (not shown).



Semi-auto Uzi bolt with spring and firing pin striker assembly just below.

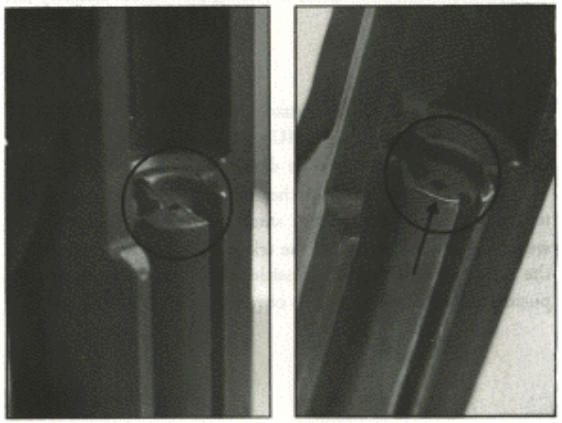
The bolt face on semi-auto Uzis of recent manufacture has also been changed and MUST BE corrected for full auto fire. This process is shown in detail in the following chapter.

The trigger assembly of the semi-auto version is identical to the full auto except for a small steel block. This block is welded in the front part of the trigger housing which prevents the select lever from being positioned in the "A" (automatic) position. This modification is covered in detail in Chapter 3.

Difference Between Bolts

The photos below depict the semi-auto Uzi bolt face (left) and the modified bolt face (right). The only difference between the modified semi-auto bolt face and the original, full auto bolt face is that the latter has a firing pin machined into the center of the bolt.

The earlier semi-auto Uzi bolts were made with the ridge shown on the modified bolt face. However, this has been machined off on all later production models. Check your bolt face carefully. If it looks like the modified bolt, no modification is required.



Left: unmodified semi-auto Uzi bolt face, note bolt face is smooth up to firing pin hole. Right: modified semi-auto Uzi bolt face, note ridge now on lower portion of bolt face. The full-auto would look like this, only with a machine firing pin instead of firing pin hole.

2

Modification Of Bolt

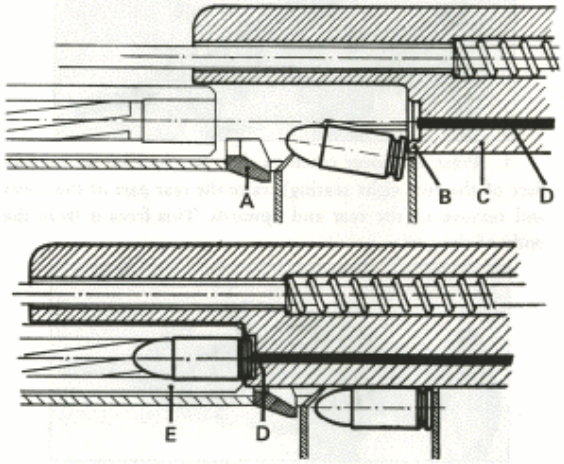
Removal of Bolt

1. Press the cover catch to the rear (located in the fore part of the rear sight seating), raise the rear part of the cover and remove to the rear and upwards. This frees it from the body of the gun.

2. Raise the front of the bolt until it clears the main body of the gun, then remove it forward with the return spring assembly. Separate this assembly from the bolt by pulling it to the rear.

Reason for Modifying Bolt Face

When firing in the semi-auto condition, the firing pin and striker assembly are held back, leaving a smooth bolt face to chamber a round. When firing in the full auto mode, the firing pin follows the bolt forward, protruding from the firing pin hole in the bolt. Without the addition of the bolt ridge, the round can travel up the bolt face and jam on the firing pin before being chambered. With the addition of the bolt ridge, the round rides on the ridge until almost chambered, then drops onto the bolt face and detonates on the firing pin when fully chambered.



Full-auto fire in the semi-auto Uzi is accomplished by: 1. Bolt face ridge (B) contacts rear of cartridge in magazine and starts it moving forward; 2. The nose of the bullet contacts the ramp (A) and moves into the chamber (E); 3. When the cartridge is fully chambered it slides off the bolt face ridge (B) and the firing pin (D) is allowed to strike and detonate the cartridge.

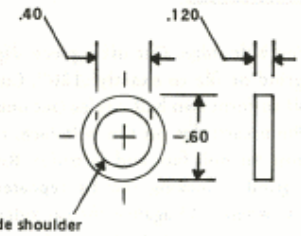
Making the Bolt Ridge

The first step in modifying the bolt is to make the bolt ridge. This ridge consists of a small piece of good steel with an interior diameter of .40" welded between the extractor hole and the ejector slot and conforming to the outside dimensions of the bolt.

The material used to make this part was a hardened steel 5/8" bolt from the local hardware store. The length is not important just as long as there is enough unthreaded bolt to make both the part and welding fixture.

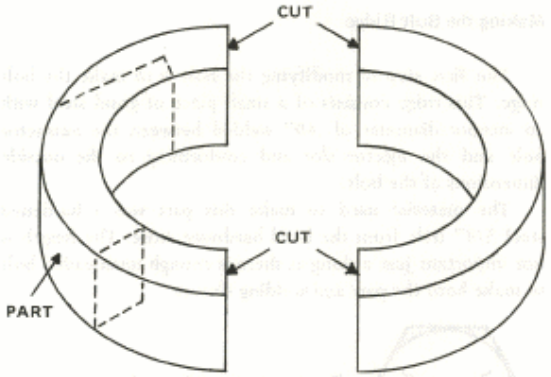
Drawing to the left is of the head of a harden steel bolt. Note the three lines on the top of the head which denote harden steel.

First, cut off the hex head and face off on a lathe. Turn down the outside diameter of the unthreaded bolt to .60". Drill the center of bolt with a 25/64" (.390) drill. Countersink and radius the inside hole shoulder to the same dimen-



SCALE = 1:1

MACHINED RING FOR BOLT RIDGE

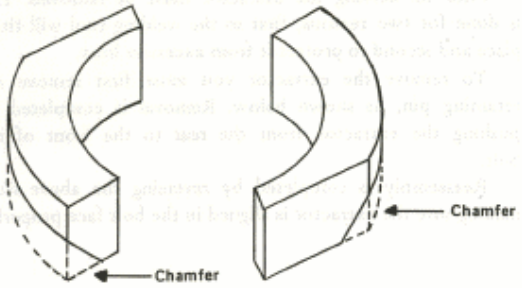


SCALE APPROX. = 3:1

Drawing above shows the approx. lined dimensions of the bolt ridge part. Photograph to the left is of a finished part, except for chamfering outside radius. Notice the radius on the upper inside of part's shoulder.

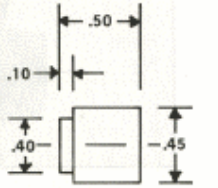
sions as the existing bolt ridge. Cut off a piece slightly over .120" long, then grind or file to exactly .120". Cut this ring shaped piece in half to form two half circles (set one aside for a spare). Place a 9mm cartridge on the bolt face, then place the ridge part against the bolt face and cartridge. Remove the part and file or grind, checking the fit repeatedly. Continue until the part, when held against the cartridge and bolt face, is smooth to the outside of the bolt and matches up to the extractor hole and ejector slot. You are now ready for welding.

Grind a chamfer on the bottom outside radius (as shown below) of the ridge part for welding.



Making the Welding Tool

Machine the welding fixture to the dimensions shown below. Use the remainder of the hardened bolt for the welding fixture stock.



DRAWING'S SCALE = 1:1

WELDING TOOL

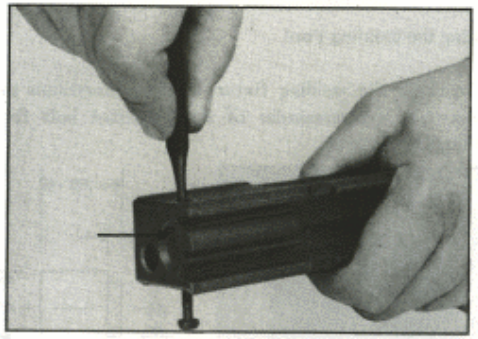
Photograph to left is of the finished welding tool.

Removing The Extractor

Prior to welding the extractor must be removed. This is done for two reasons, first so the welding tool will fit in place and second to protect it from excessive heat.

To remove the extractor you must first remove the retaining pin, as shown below. Removal is completed by pushing the extractor from the rear to the front of the bolt.

Reassembly is completed by reversing the above steps making sure the extractor is aligned in the bolt face properly.

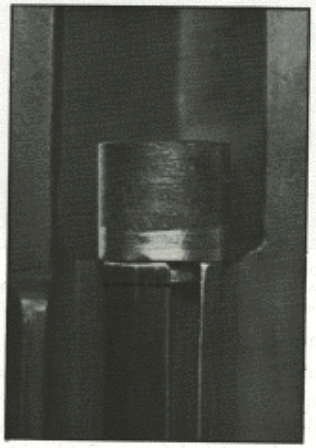


The above photograph shows the extractor retaining pin being removed. After the retaining pin has been removed, simply press on extractor (at arrow) and it will slide foward out bolt face.

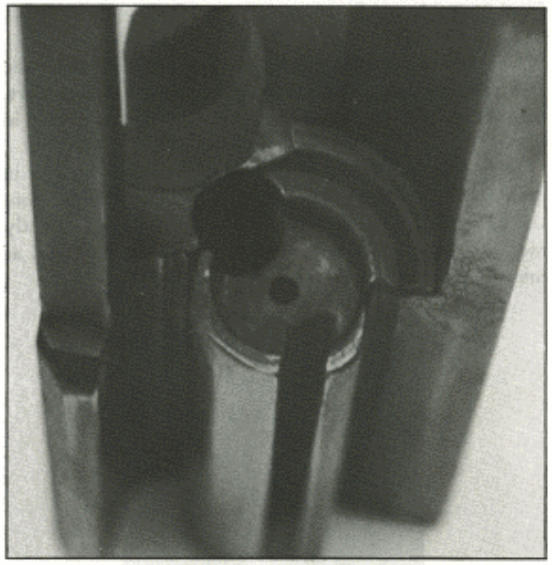
Final Assembly and Finishing

Replace the cartridge on the bolt face with welding fixture and slide the bolt ridge part in place. Carefully align part, then attach C clamp and tighten on welding fixture to hold in place.

The next step is to acetylene weld the bolt ridge part in place. This is the most delicate part of the bolt modification. Use as small a tip as possible and 1/16" steel rod. Slightly over fill the chamfer with weld, then let the bolt cool at room temperature.



This photograph shows the welding tool in position on the bolt face. The dotted line shows the placement of the new ridge. A C-clamp is placed between welding tool and rear of bolt to hold ridge in place as it is welded along dotted line.



The photograph here shows the finished new bolt. The ridge has been welded in place, the over filled weld has been filed and polished smooth and it has been cold blued for the finishing touch.

Place a flat file parallel to the bolt surface and carefully file down the weld until bolt surface, weld and new bolt ridge part appear to be one. Check the ejector slot and extractor hole for metal interference and clean up as necessary. Polish to the original factory finish with emery cloth. After cold blueing the exposed bare metal areas, you are ready for reassembly.

The above bolt modification will not affect the Uzi's semi-auto function. In fact, it improves chambering characteristics in all modes of fire.

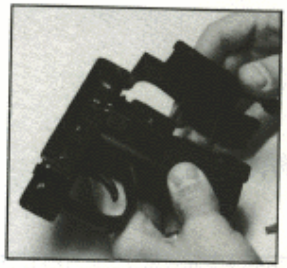
3

Select Fire Modification

The selective fire modification for the semi-auto Uzi is a permanent modification to the firearm and is illegal unless prior BATF approval is obtained.

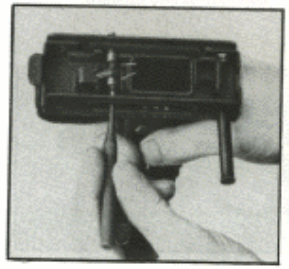
Disassembly of Trigger Housing

Press the trigger assembly pin into its housing, using the handle of a cleaning rod, etc. It is only necessary to disengage the pin, without separating it form the trigger assembly. Separate the assembly from the body by swinging the pistol grip slightly downwards and forward.



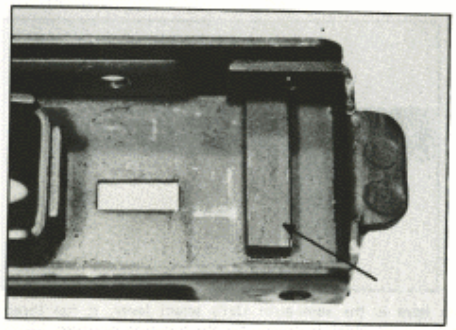
Loosen the two pistol grip screws and remove the grips. Allow the grip safety to travel to it rear most position.

Place select lever in the "F" position. Using a drift pin or equivalent, push the sear pin from left to right and remove. Remove the sear and its spring.

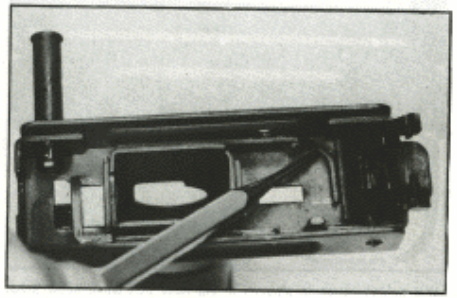


Free the two front ends of the trigger spring by pressing them downwards, bringing them away from the sear intermediate lever. Using a drift pin, as before, push the trigger pin from left to right and remove. Remove the trigger assembly from the trigger housing.

As shown in the photograph, just below, a small steel block has been welded to the bottom of the trigger housing. This block restricts the select lever from traveling into its full auto position. In the photograph at the bottom of this page, the select lever is shown in semi-auto position and against the block.

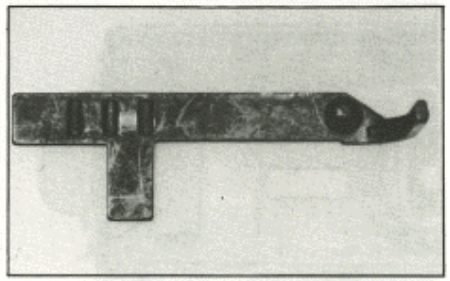


Above: with all parts removed, a small steel block is exposed. This block restricts select lever from it normal full-auto position.

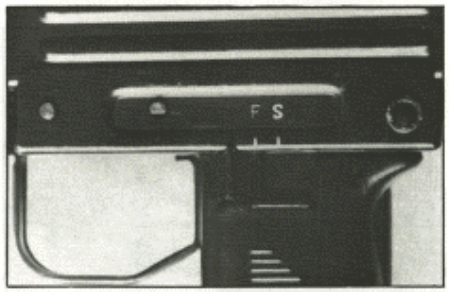


Above: the punch is shown pointing at the select lever in its "F" fire position against the steel blcok.

Shown just below, the semi-auto select lever already has a detent notch in it for the full-auto position. The removal of the select lever block allows the select lever to be positioned in the full-auto position. The trigger assembly then becomes essentially the same as in the full-auto Uzi. At bottom of page is shown the select lever in the new, full-auto position.



Above: here is the semi-auto Uzi's select lever. It has three detent notches, one of which is already for the full-auto position.



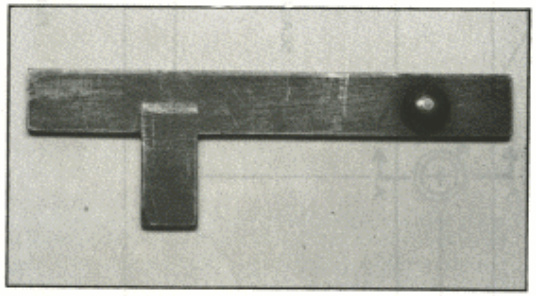
Above: the select lever is shown in its new position, after steel block was removed. In this position with bolt face modification, full-auto fire will result.

4

Full Auto Select Lever

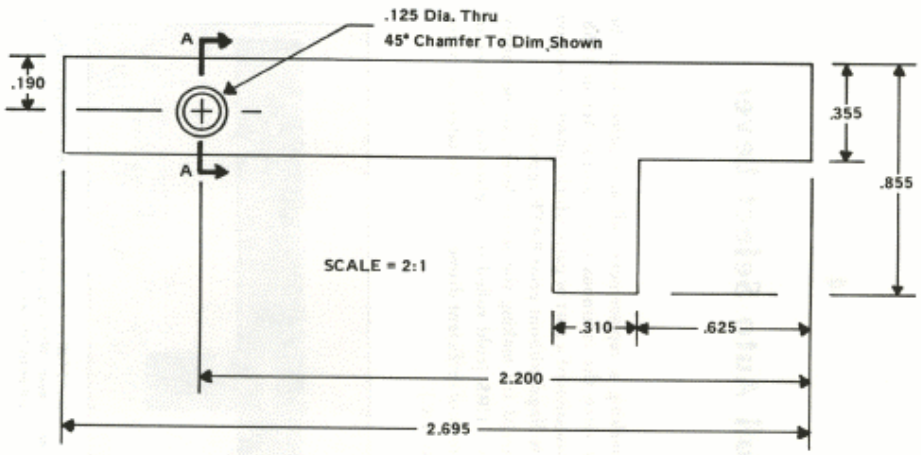
Before making a replacement full auto select lever, be advised that since the infamous Gun Control Act of 1968, the mere possession of a part or parts which convert a weapon to full auto is illegal without prior BATF approval.

The material for making the select lever can be simply .062" (1/16") CRS (cold rolled steel) plate for the selector and round stock of sufficient diameter for the safety activator button (bolts, etc.).



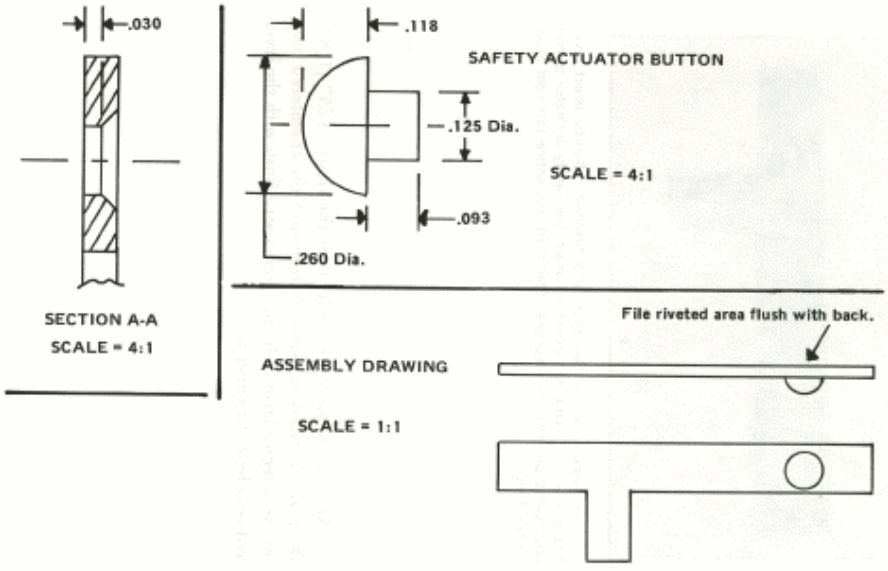
Here is shown a finished full-auto select lever. This lever simply replaces the existing select lever. When placed in the "F" position with bolt face modification, full-auto fire will result.

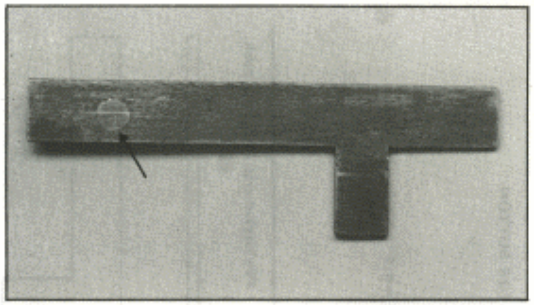
28



FULL AUTO SELECT LEVER

29



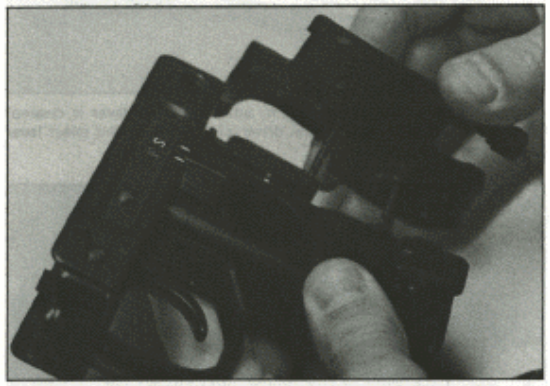


This photograph shows the back of a finished full-auto select lever. The arrow is showing the point at which the safety activator button was riveted on. This area has been filed flush and entire part cold blued for finishing.

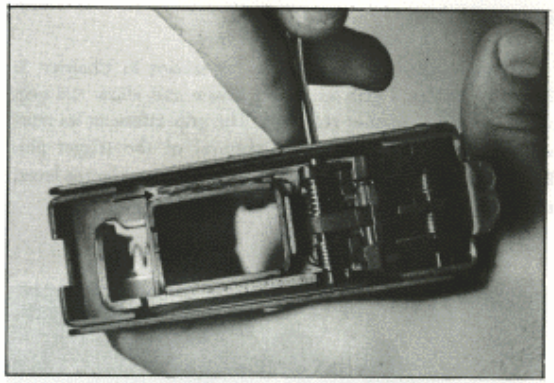
After both parts are made, rivet the short, .125" (1/8") shaft of the safety activator button into the chamfered hole on the selector lever. File the riveted area flush with the lever and cold blue the entire part.

Easy Installation

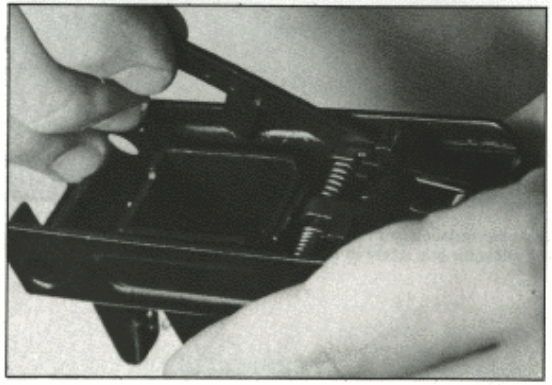
Remove the trigger assembly as shown in Chapter 3. Remove the hand grip as shown below and allow the grip safety to travel further rearward. The grip safety in its rearward-most position allows the removal of the trigger pin. Push the trigger pin just far enough to clear the selector lever, this is shown in photograph on following page.



For easy installation of full-auto select lever, first remove hand grips and allow the grip safety to travel to rear.



As shown above, push trigger pin in until the select lever is cleared. Place the blade of a small screw driver at the end of the select lever (arrow) and lift upward.



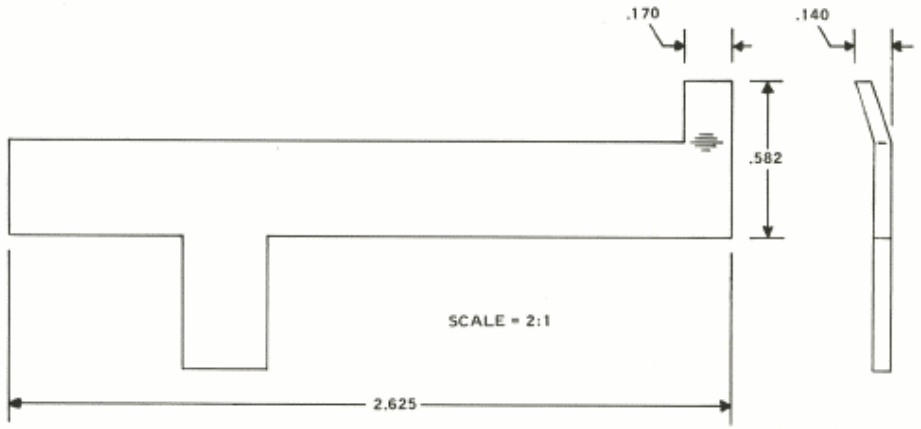
With your fingers, lift the select lever upward and remove. The new select lever can be installed by reversing these steps.

Place a small screwdriver blade under the rear of the select lever and lift upward. Now remove the lever as shown in bottom photograph on preceding page. Insert the new selector and press the trigger pin in place. Depress the grip safety and screw the grips back on. Replacement is now complete.

The new selector gives you full auto fire in the "F" (fire) position and safety in the "S" position.

Full Auto Selector for Earlier Semi-Auto Uzi

In the earlier semi-auto Uzi, the trigger mechanism was made slightly different. The main difference is that the earlier selector has no safety activator button. Because of this a slightly different design is required. The material and installation of this selector is the same as for later model selectors.



FULL AUTO SELECT LEVER FOR EARLIER SEMI—AUTO UZIS
All Dimensions Except Those Listed Are The Same As Other